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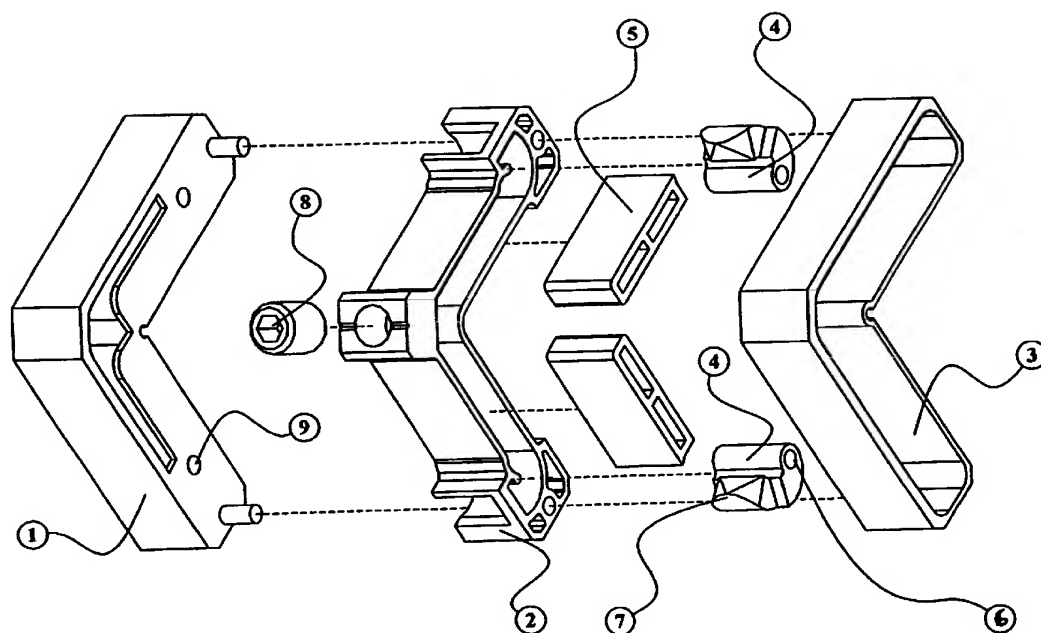
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9-11, Bouboulinas Street, GR-106 82 Athens (GR).
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- (71) Applicant and (72) Inventor: FRAGOPOULOS, Fotis [GR/GR]; 14 Promitheos Street, GR-145 64 Nea Kifisia Attikis (GR). For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CORNER KEY FOR MAKING ALUMINIUM DOOR AND WINDOW FRAMES



(57) Abstract: The corner key consists of two similar main pieces (1), (3) and a centre piece (2) bearing properly formed housings of pushers (5) and hooks (4), where said hooks (4) bear a swelling (6) and tightening projection (7). A screw (8) is used to push the pushers (5) which in turn push the hook (4), in order that the swellings (6) are disengaged from their housing (9) where are seated. The angle is tightened with the help of the projections (7) and simultaneous alignment of the aluminium profiles (10) is achieved.



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CORNER KEY FOR MAKING ALUMINIUM DOOR AND WINDOW FRAMES

The present invention relates to an angle bar for joining together pieces of aluminium door and window frames with side opening and tightening possibility that has been invented , manufactured and distributed in the market for the first time exclusively and only by me .

It is known that the parts and pieces constituting either the aluminium door or window frame , are joined together with internal angle bar addition . With existing for this purpose angle bars that are consisted of two pieces joined together with opening and closing ability, there is achieved only tightening of the two pieces of door or window frame at the joining point , whereas their alignment is achieved by other additional alignment or in other terms leveling angle bars as called by the skilled , which procedure is expensive and time consuming .

With the angle bar for joining together aluminium door and window frames of the present invention , that is of one piece all disadvantages of the joining angle bars already known for this purpose are eliminated , as fixing of said angle bars ensures tightening and aligning of the parts constituting the frame at the same time , fast and easy , without the need of use of additional alignment or leveling angle bars and therefore the angle bar of one piece of the invention has the advantage in the point that its use reduces the cost of manufacture of aluminium door and window frames considerably, because of the abolition of use of alignment angle bar on one hand and the reduction of working time on the other .

The subject of present invention will be fully understood with reference to the accompanying drawings where said angle bar of one piece is descriptively shown as a whole and with the partial details constituting it , where :

FIG. 1 is a detailed view of the angle bar of the invention .

FIG. 2 is a general view of the angle bar in connection with the aluminium door or window frame.

5 FIG. 3 is a cross section of the angle bar mounted on the door or window frame , and

FIG. 4 is a cross section of the angle bar of one piece of the invention.

10 According to the invention , the angle bar of one piece for joining parts of door and window frames made of aluminium consists of the two similar main pieces (1), (3) and the centre piece (3) bearing the pushers' housings (5) as well as the hooks' housings (4) properly formed. The hooks (4) bear a small swelling (6) , a tightening and alignment projection (7) facilitating the tightening and alignment of the angle bar within the housing of the door or window frame and a screw of Allen type (8) , whereas the main pieces (1),(2) bear a housing (9) of the swelling (6) of hook (4) .

15 Tightening and alignment of the angle bar of one piece within the door or window framing housing (12) of aluminium profile (10) is achieved by tightening the screw (8) which screw (8) pushes the pushers (5) that in turn push the hook (8) , thus disengaging the swellings (6) of said hook (4) from the housing (9) where they are normally seated , the angle comes in an opened position and with the help of the tightening projections (7) tightening within the door or window frame housing (12) is being realized together with simultaneous alignment of the aluminium profile (10) .

20 It must be noted at this point that the number of pieces consisting the angle bar of one piece of the invention , may be changed in order to enable said angle bar to be mounted in any door or window framing housing (12) of aluminium profile (10) having different dimensions , without having to modify the basic principle of function of the angle bar of one piece of the invention .

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Finally , it has to be mentioned that the angle bar of one piece for joining together aluminium pieces of door and window frames is manufactured by a combination of plastic material , zamak , aluminium and brass , without
5 this meaning that said angle bar can not be made of any other suitable material that may be available .

CLAIMS

1.- Angle bar of one piece for joining together pieces for making aluminium door and window framing , also having side opening and tightening possibility , characterized in that it consists of the angle shaped pieces (1),(2),(3) ,
5 all being in one piece , the hooks (4) , the pushers (5) and the Allen type screw (8) .

2.- Angle bar of one piece for joining together pieces for making aluminium door and window framing , as in claim 1 , characterized in that the hook (4) bears a swelling
10 (6) and a projection (7) fascilitating the tightening of the angle bar within the housing (12) of the aluminium profile , with which projection (7) is also achieved simultaneous alignment of the pieces constituting said aluminium profile (10) .

3.- Angle bar of one piece for joining together pieces for making aluminium door and window framing , as in any one of claims 1 and 2 , characterized in that by tightening the screw (8) the pushers (5) are pushed , pushing
15 the hook (4) in turn with a result the swellings (6) of said hook (4) to be disengaged from housing (9) , the corner to be opened and with the help of tightening projections (7) the tightening within the housing (12) of the aluminium profile(10)to be achieved , as well as alignment
20 of said aluminium profile (10) .

4.- Angle bar of one piece for joining together pieces for making aluminium door and window framing , as in any one of claims 1,2,3 , characterized in that it may be constituted by more than three angle shaped pieces ,in order
25 to be able to be mounted in any housing dimensions (12) of aluminium profile , without differentiating the basic function principle of said angle bar .
30

5.- Angle bar of one piece for joining together pieces for making aluminium door and window framing , as in any one of claims 1,2,3,4 , characterized in that it may be manufactured by a combination of materials such as plastic , zamak , aluminium , brass , as well as by any other suitable material available .

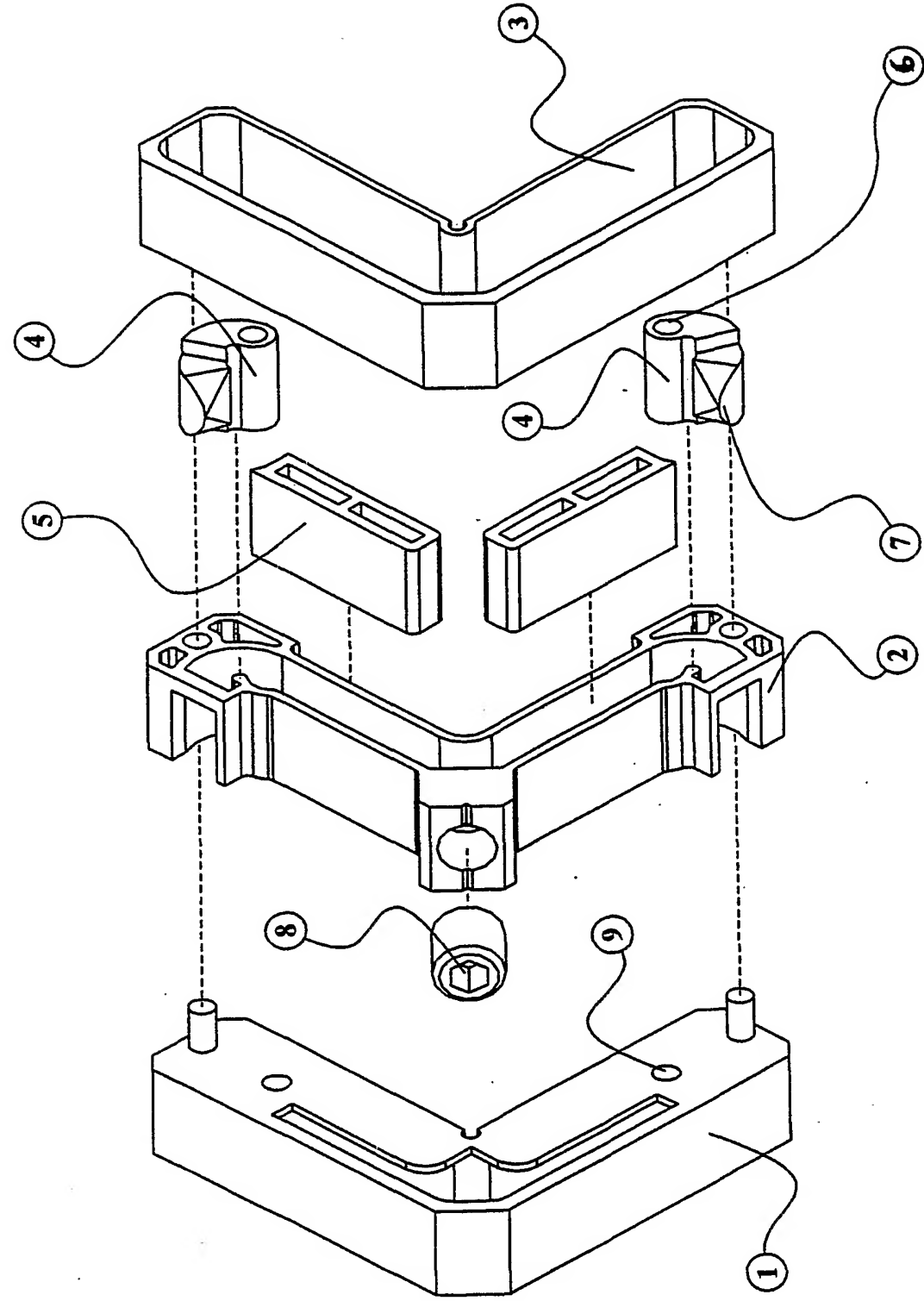


FIG. 1

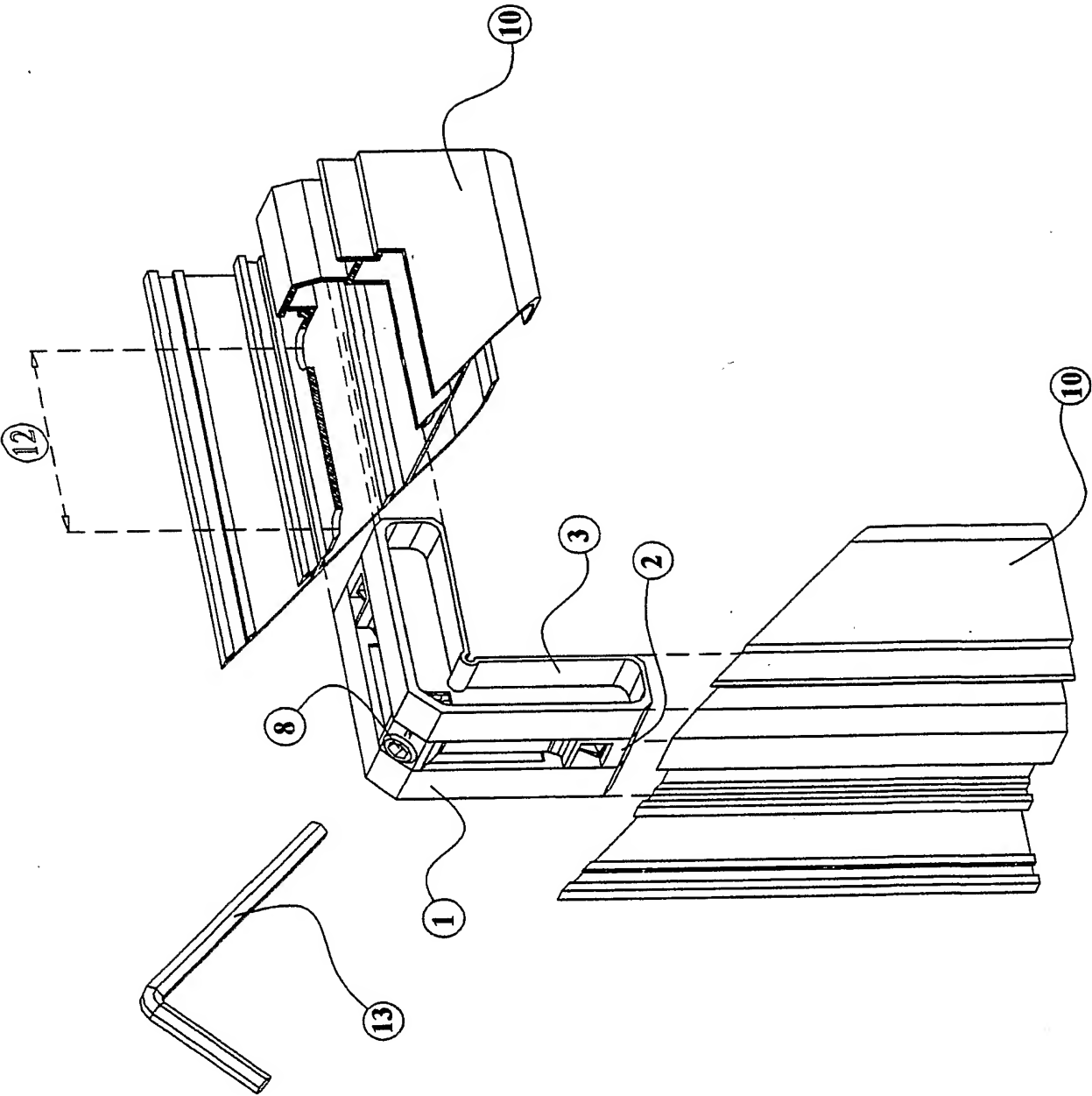
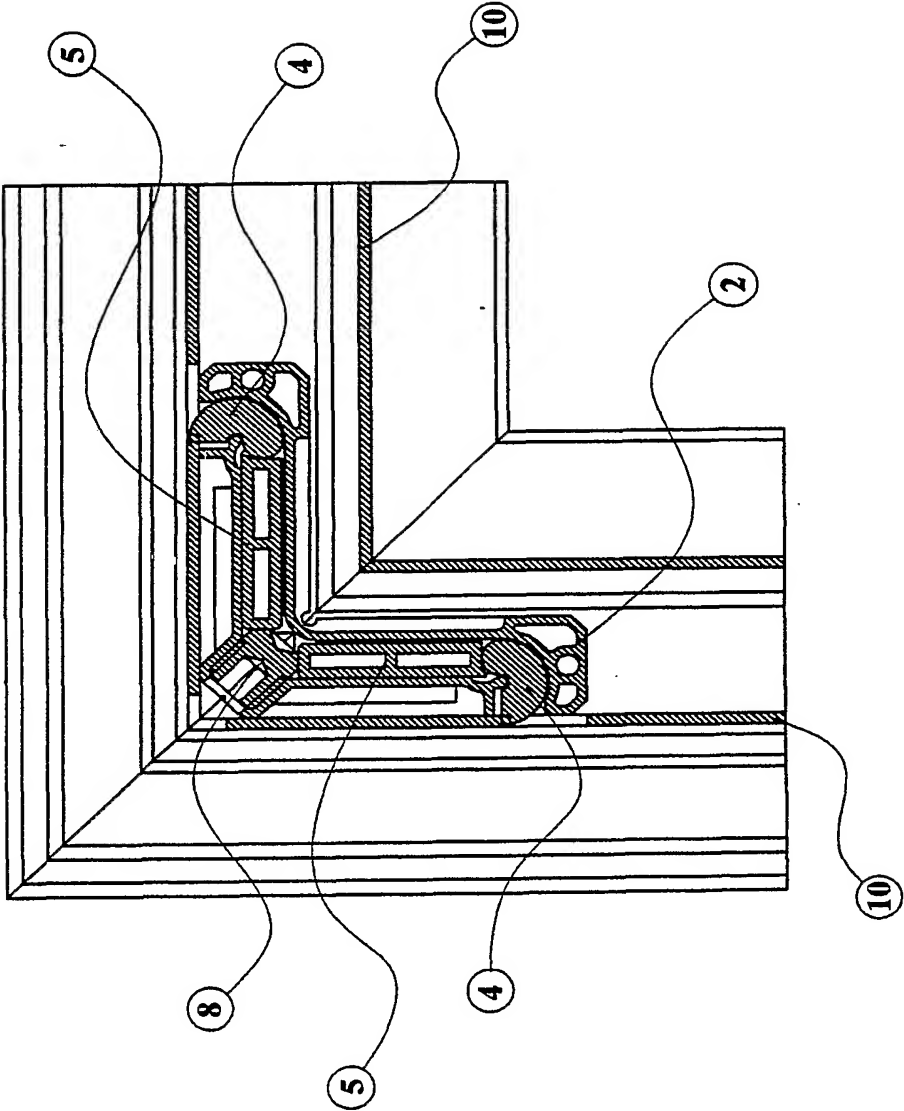


FIG. 2



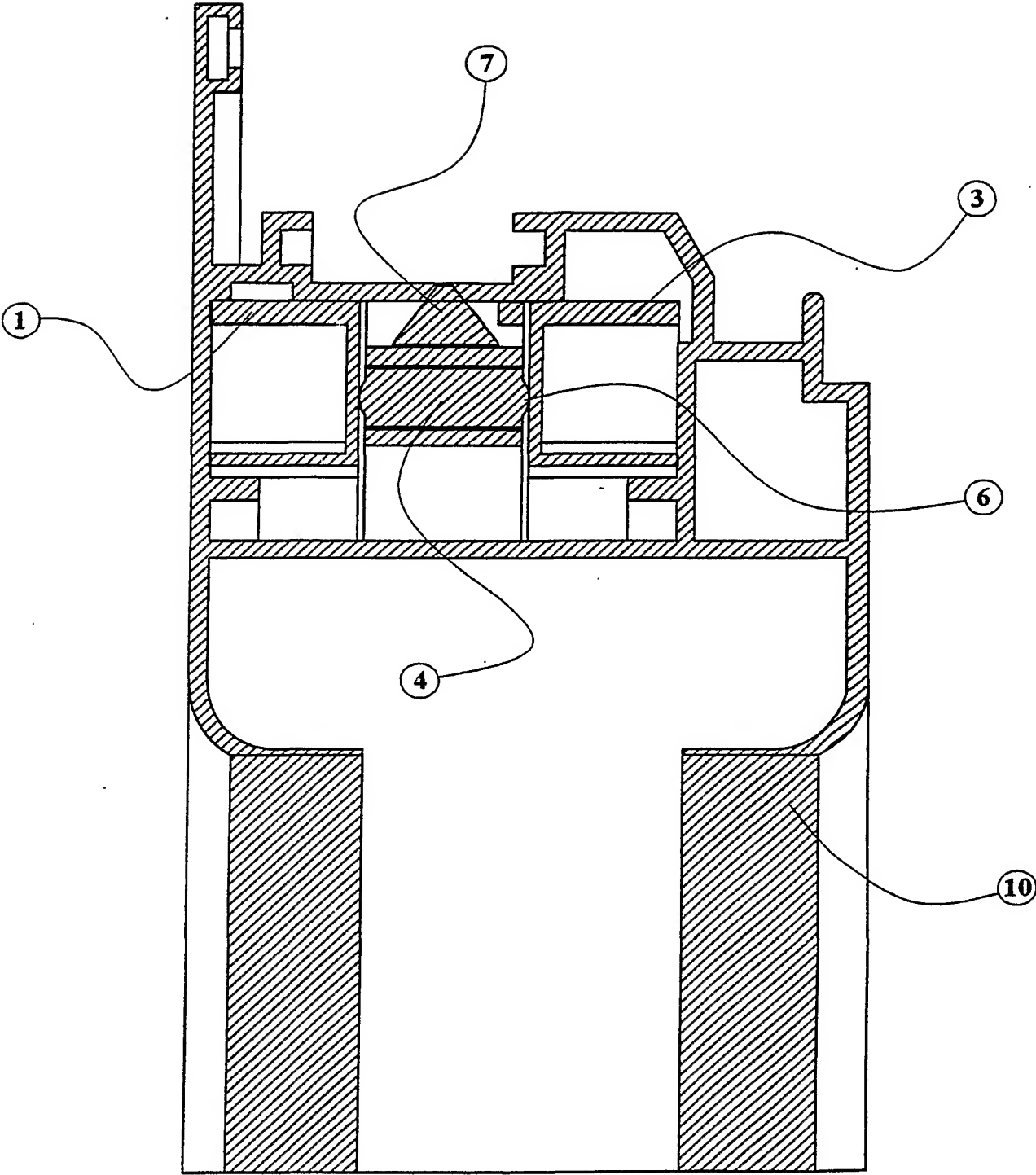


FIG. 4

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/GR 02/00016

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 E06B3/972

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 E06B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 042 298 A (POLYZOPOULOS ATHANASIOS ET AL) 28 March 2000 (2000-03-28) the whole document	1-3
A	EP 0 373 008 A (MERLIN GERIN) 13 June 1990 (1990-06-13) the whole document	1-3
A	WO 97 39217 A (CHRONOPOULOS PANAGIOTIS) 23 October 1997 (1997-10-23) the whole document	1-3
A	WO 99 28585 A (VEITH RUDOLF) 10 June 1999 (1999-06-10) page 4, paragraph 4 -page 5, paragraph 1; figures	1-3
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

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- *O* document referring to an oral disclosure, use, exhibition or other means
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- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

20 June 2002

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28/06/2002

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/GR 02/00016

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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International Application No

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EUR-CL (EPC): E06B003/972 , E06B003/98

ABSTRACT:

CHG DATE=20021101 STATUS=O>The corner key consists of two similar main pieces (1), (3) and a centre piece (2) bearing properly formed housings of pushers (5) and hooks (4), where said hooks (4) bear a swelling (6) and tightening projection (7). A screw (8) is used to push the pushers (5) which in turn push the hook (4), in order that the swellings (6) are disengaged from their housing (9) where are seated. The angle is tightened with the help of the projections (7) and simultaneous alignment of the aluminium profiles (10) is achieved.